

Fig. 1

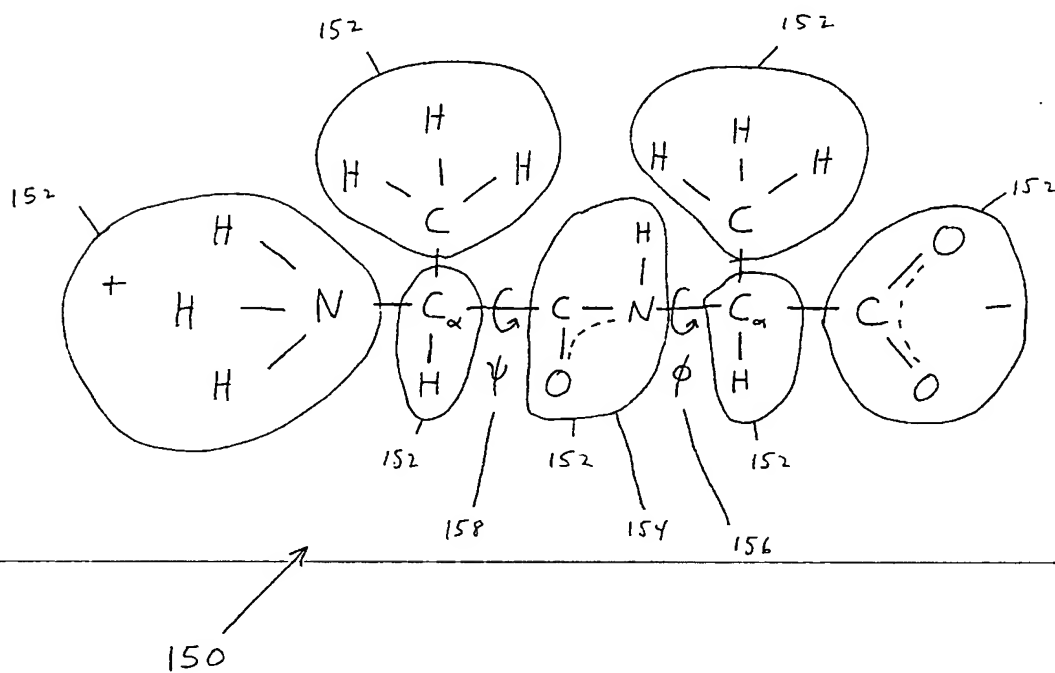


Fig. 3

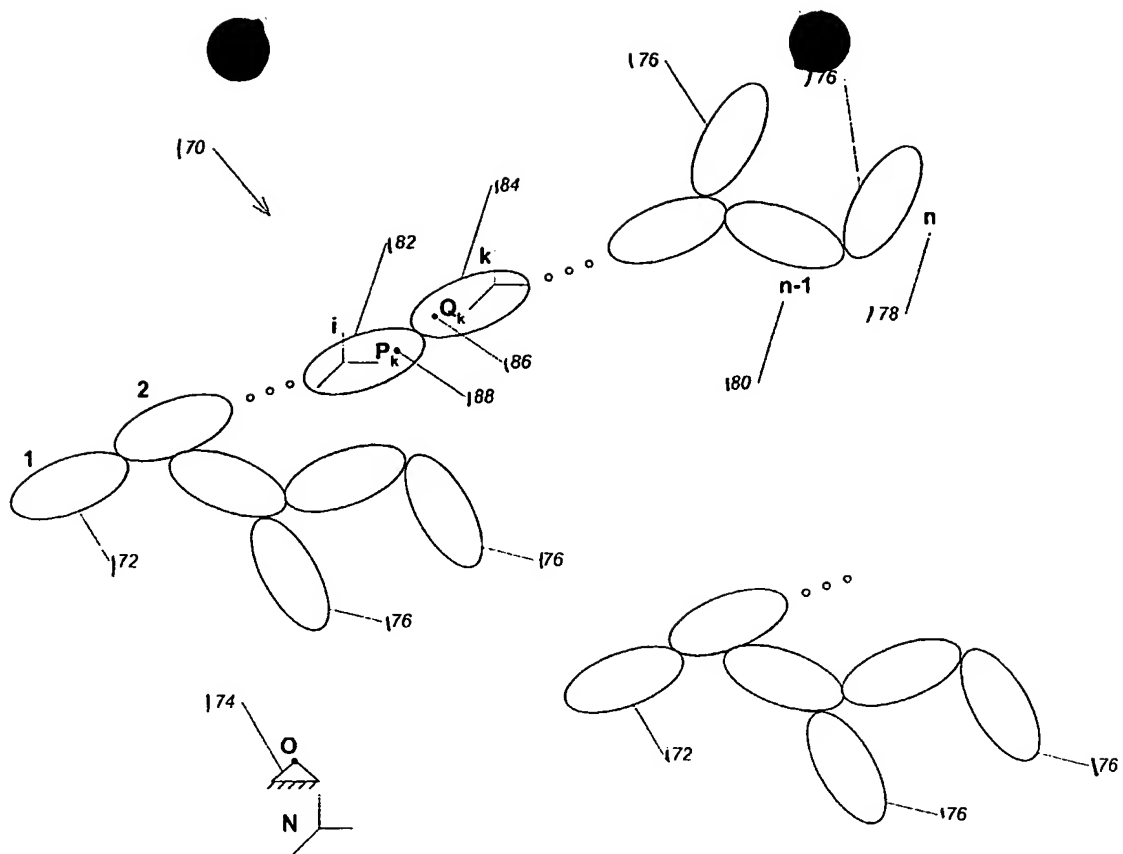


Fig. 2

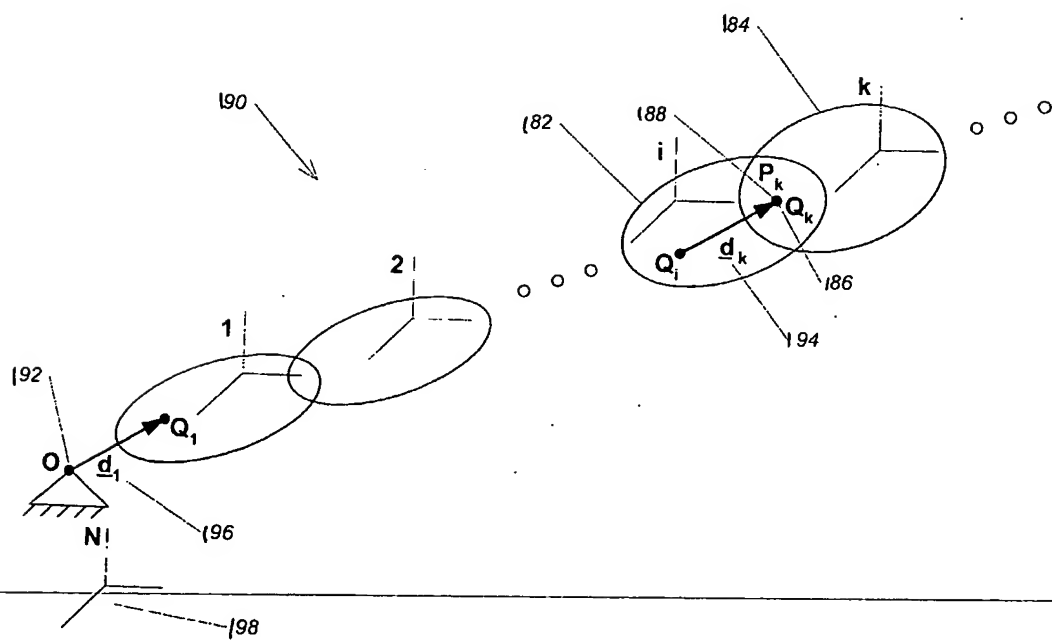
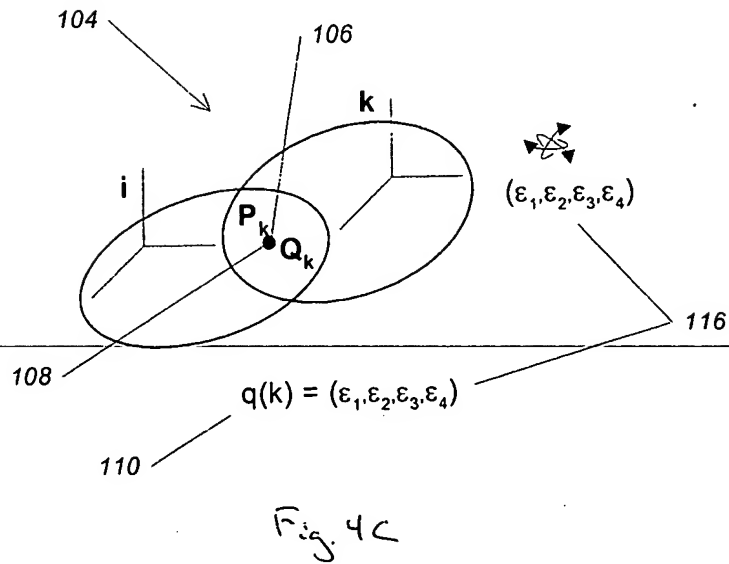
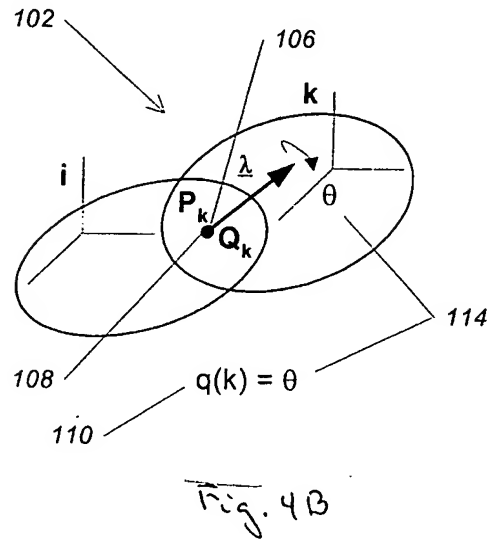
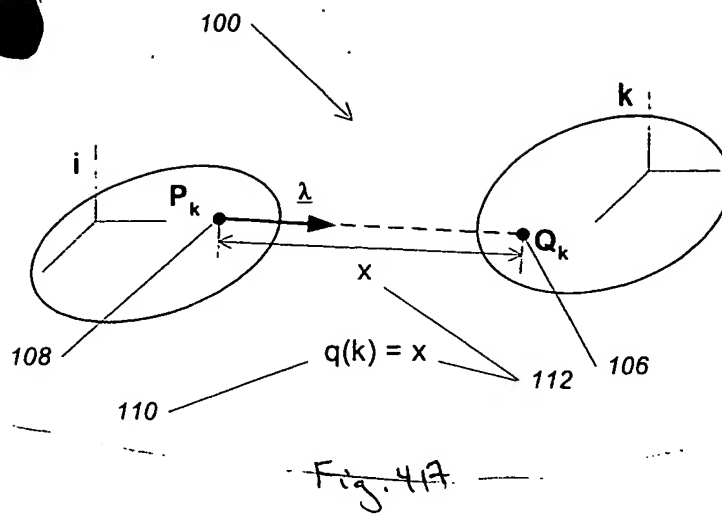
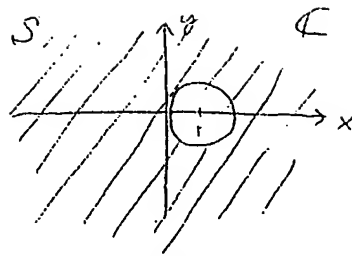


Fig. 3



Implicit Euler

$$R(z) = \frac{1}{1-z}$$



$$S \supset C^-$$

A-stable

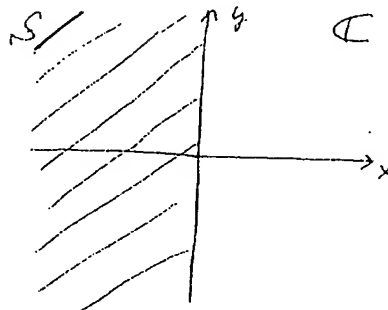
Fig. 5A

$$\lim_{z \rightarrow \infty} R(z) = 0$$

L-stable

Implicit Midpoint

$$R(z) = \frac{1 + z/2}{1 - z/2}$$



$$S \supset C^-$$

A-stable

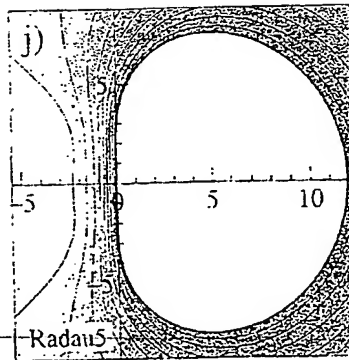
Fig. 5B

$$\lim_{z \rightarrow \infty} R(z) \neq 0$$

NOT L-stable

Radau 5

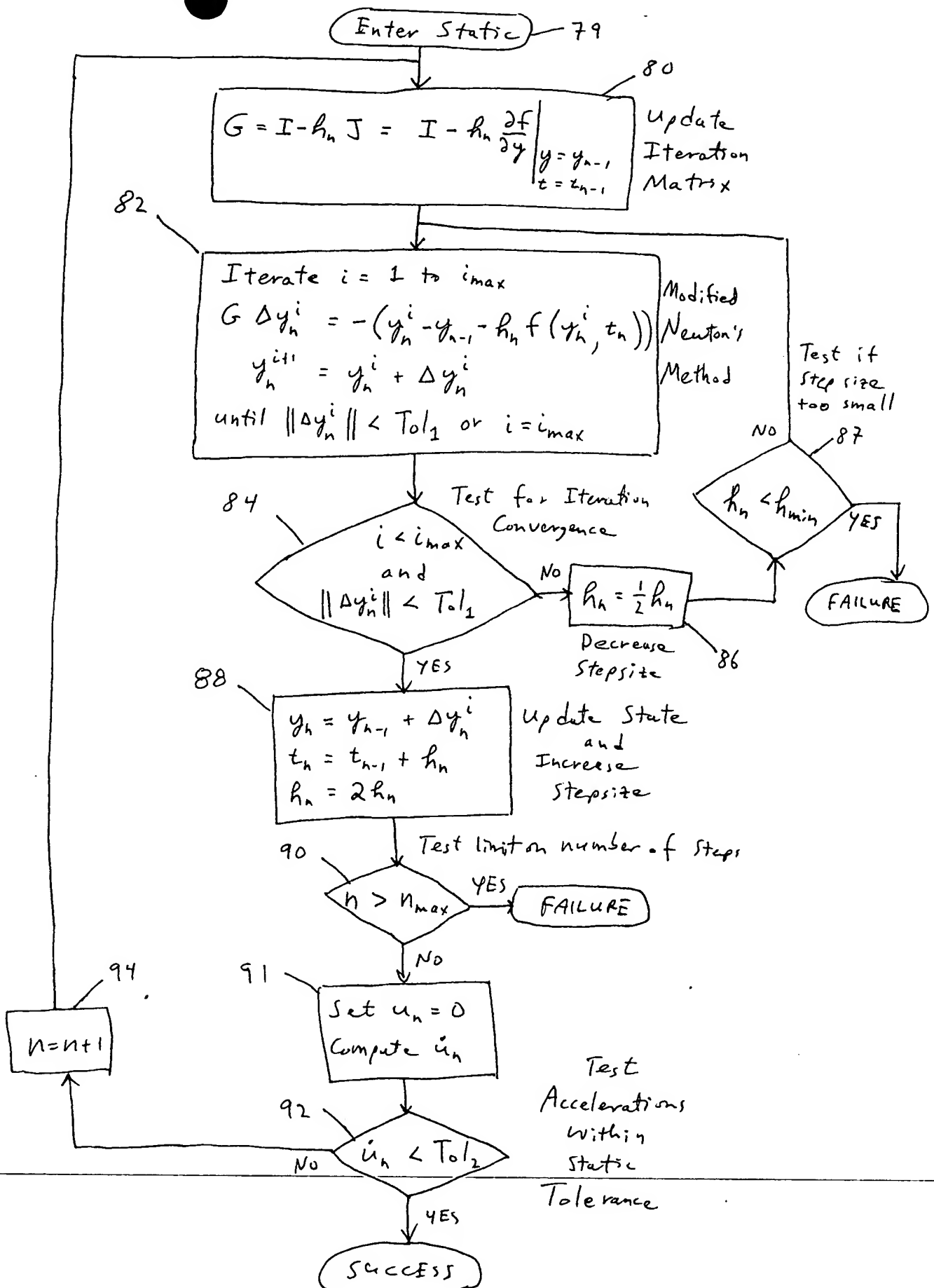
$$R(z) = \frac{1 + 2z/5 + z^2/20}{1 - 3z/5 + 3z^2/20 - z^3/60}$$



$$\lim_{z \rightarrow \infty} R(z) = 0$$

L-stable

Fig. 5C



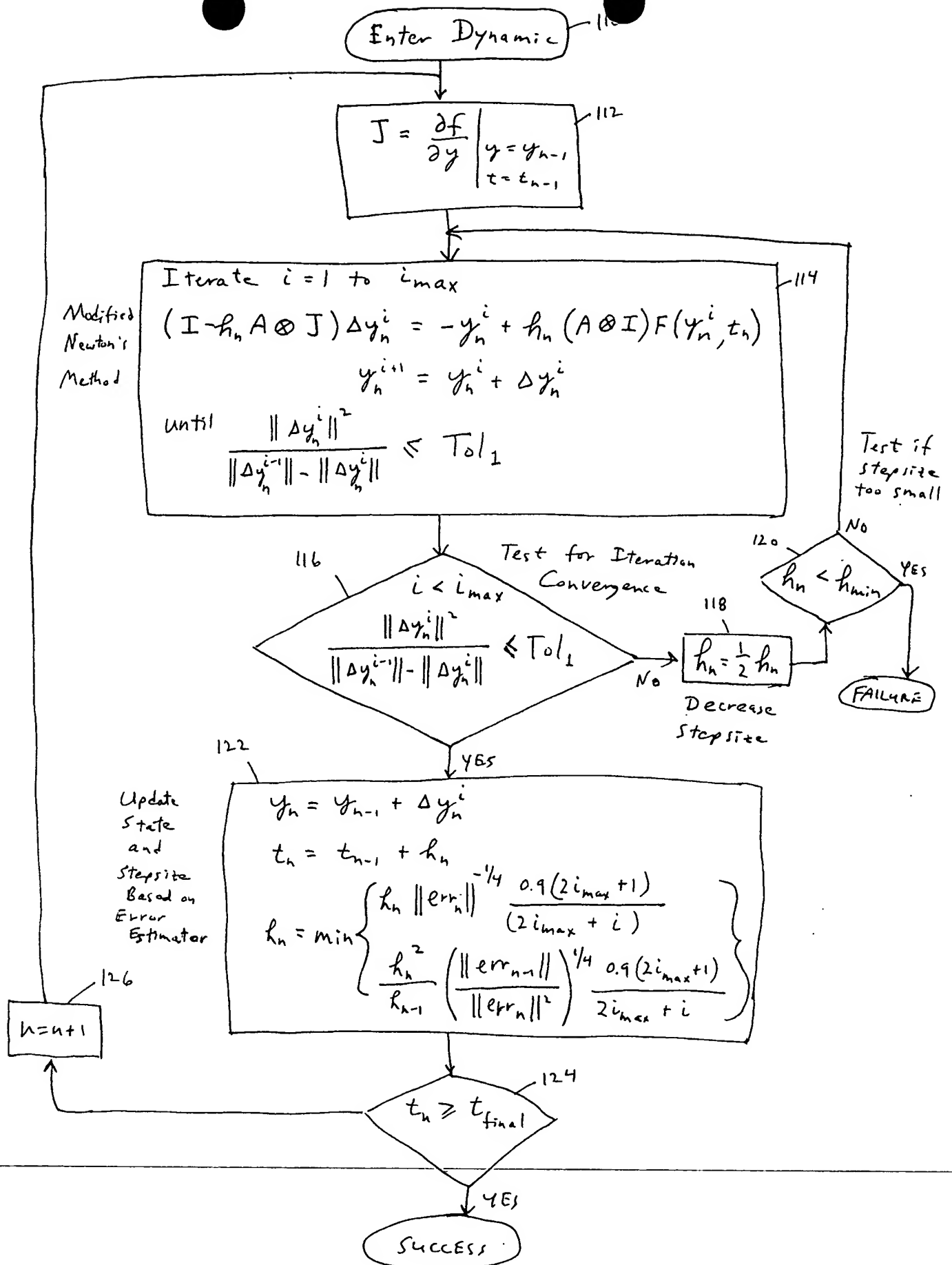


Fig. 7

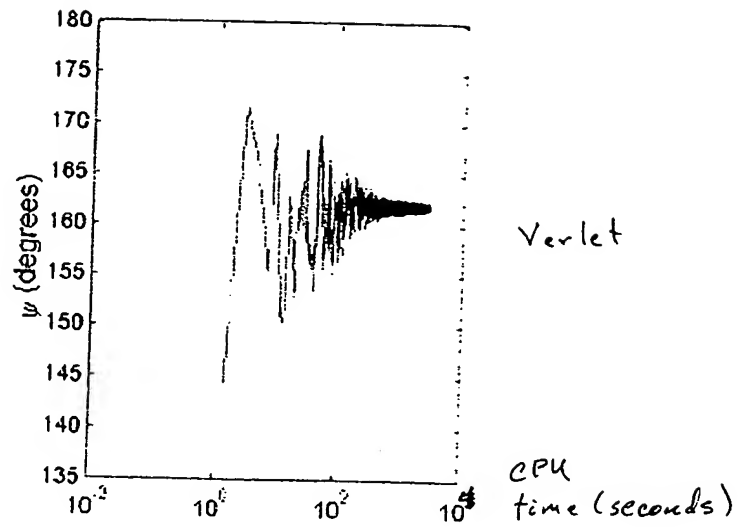


Fig. 9A

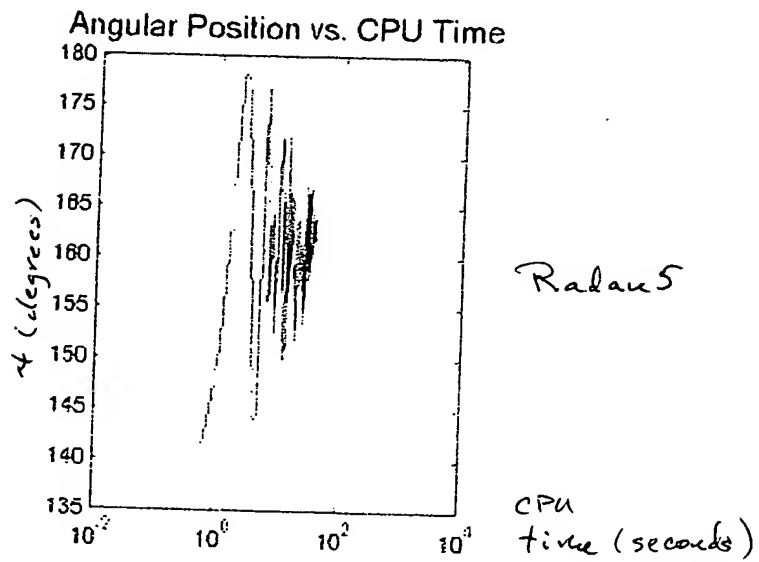
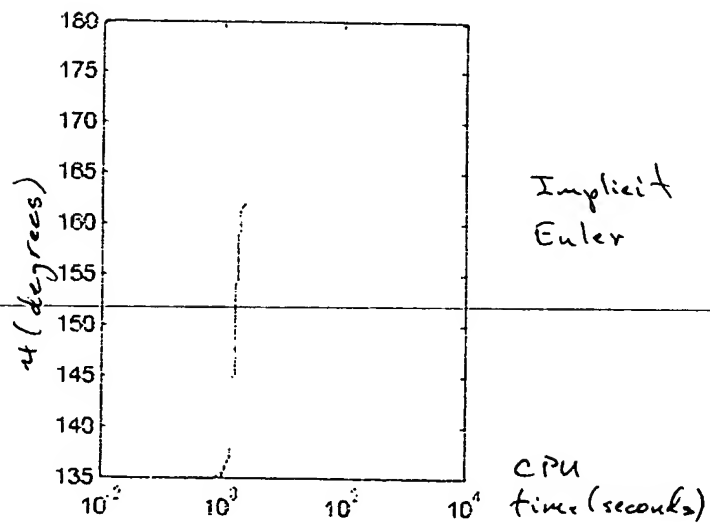
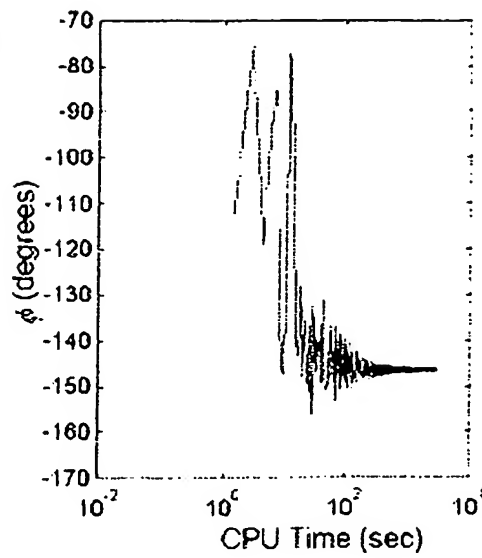


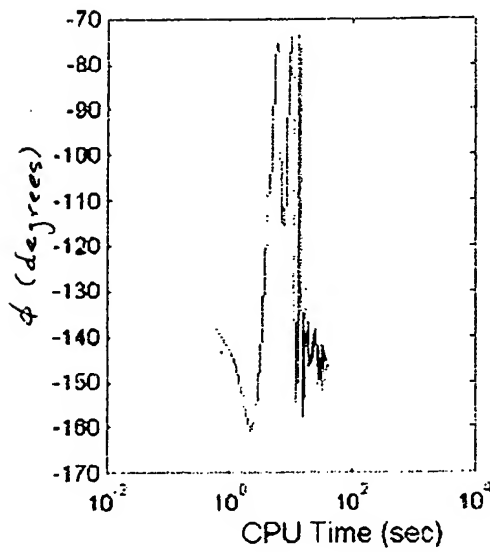
Fig. 9B





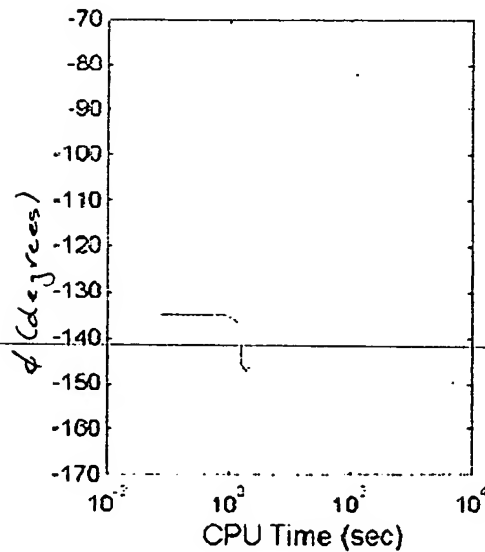
Verlet

Fig. 9D



Radau5

Fig. 9E



Implicit
Euler

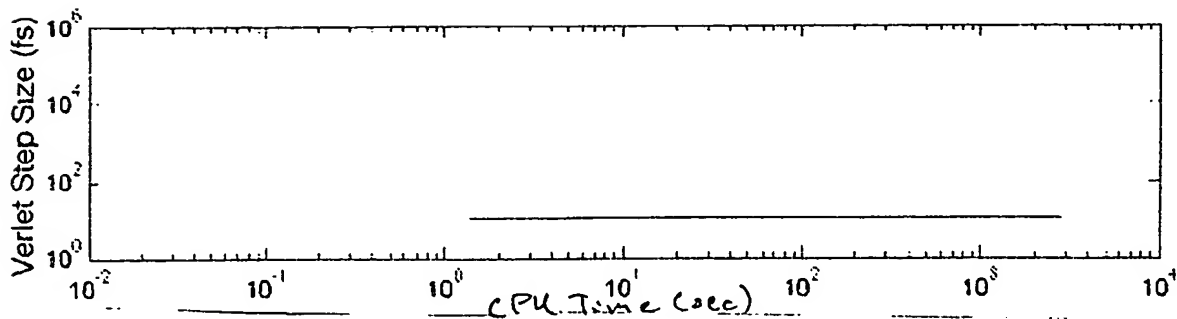


Fig. 10A

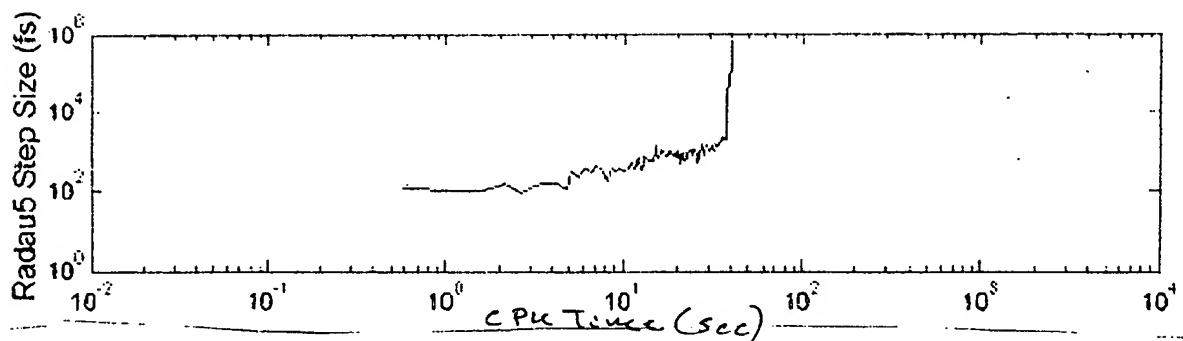


Fig. 10B

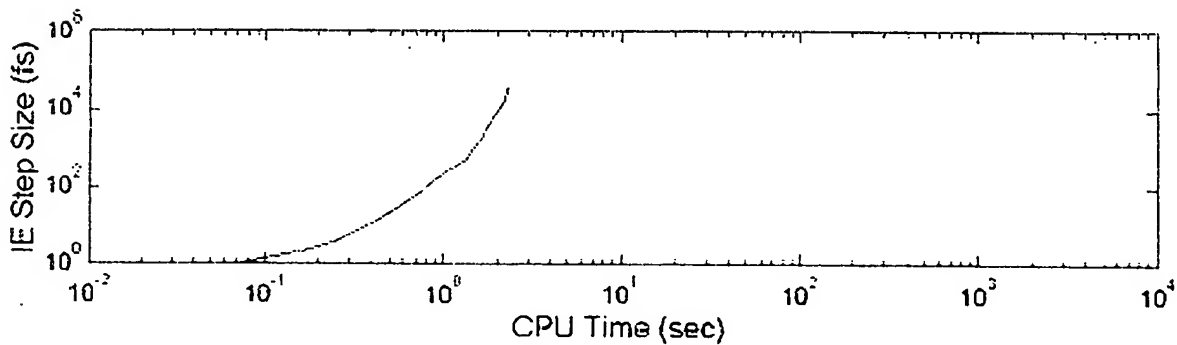


Fig. 10C